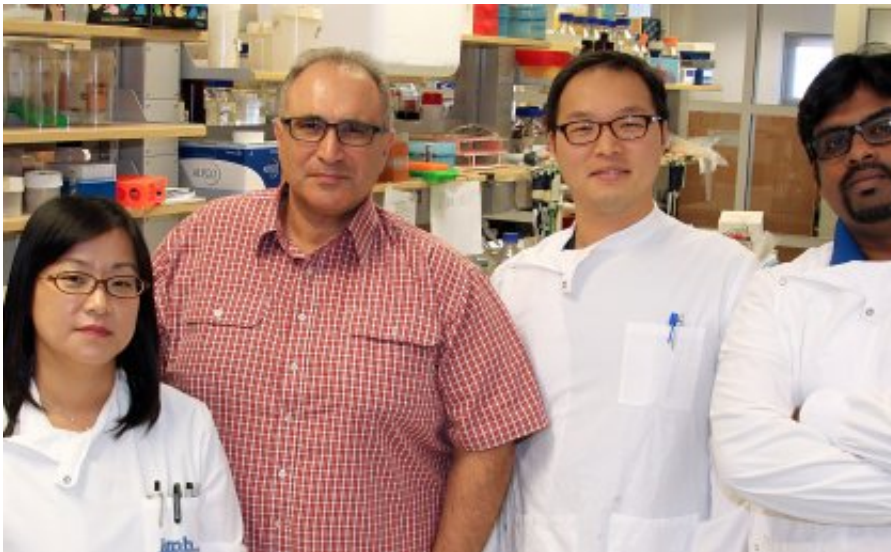


Breast cancer gene a key to unlocking new treatments

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Dr Mary Wang, Professor George Muscat, Dr Tae Gyu Oh, Dr Bipul Acharya

Researchers from The University of Queensland have identified a treatment target for aggressive forms of breast cancer.

Professor George Muscat, from UQ's Institute for Molecular Bioscience (IMB) said the gene $ROR\gamma$ was proving a promising target for [breast cancer](#) treatment in laboratory tests of experimental drugs.

"We previously identified that $ROR\gamma$ is weakly expressed in oestrogen receptor negative cancers, but its expression is elevated in patients who

survive without their cancer spreading," he said.

"We now have data showing very low expression of ROR γ in the aggressive breast cancers known as basal-like and advanced histological grade 3 breast cancers, which are more difficult to treat, with decreased chances of survival."

Professor Muscat said a patient with increased expression and activity of ROR γ had a better chance of surviving their cancer.

"We now know that ROR γ is crucial for patient survival because it suppresses the genetic pathways that control carcinogenesis, cell movement and invasion and allow tumours to spread," he said.

"ROR γ also controls [cell growth](#) and promotes DNA repair, which removes the genetic damage that leads to cancer."

Professor Muscat said patients with these aggressive and advanced types of breast cancer could be given a drug to boost ROR γ activity.

"We have tested experimental drugs that increase ROR γ activity in the laboratory and demonstrated that they control cell growth and metastasis, which is responsible for most cancer deaths and occurs when cancer spreads beyond the original site," he said.

"Our next step is to test experimental drugs in animal models, with human trials still some years off."

Cancer Council Queensland spokesperson Katie Clift said the organisation was proud to fund the research, giving hope to Queenslanders diagnosed with breast cancer.

"This is research of global significance and could help to prevent

worldwide deaths from breast cancer," she said.

"Impressively, this work has been co-funded by community donations, demonstrating the direct impact of individual giving.

"Queensland researchers are leading the way in the race to achieve medical and scientific breakthroughs, and Cancer Council Queensland is proud to play a part."

The team, which included IMB's Professor Alpha Yap, Dr Tae Gyu Oh, and Dr Bipul Acharya, discovered how ROR γ controls survival outcomes in patients through computational biology, mining thousands of human breast cancer datasets.

More information: Tae Gyu Oh et al. The Nuclear Receptor, ROR γ , Regulates Pathways Necessary for Breast Cancer Metastasis, *EBioMedicine* (2016). [DOI: 10.1016/j.ebiom.2016.02.028](https://doi.org/10.1016/j.ebiom.2016.02.028)

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